



TEST REPORT

No.I23N00245-EMC

for

TCL Communication Ltd.

Mobile Phone

Model Name: T506A

With

Hardware Version: 05

Software Version:vVK52

FCC ID:2ACCJB186

Issued Date: 2023-03-03

Designation Number: CN1210

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of SAICT.

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I23N00245-EMC	Rev.0	1st edition	2023-03-03

Note: the latest revision of the test report supersedes all previous version.



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1. SUMMARY OF TEST REPORT

1.1. Test Items

Description	Mobile Phone
Model Name	T506A
Code Name	T506A
Applicant's name	TCL Communication Ltd.
Manufacturer's Name	TCL Communication Ltd.

1.2. Test Standards

FCC Part 15, Subpart B (10-1-2021 Edition); ANSI C63.4-2014.

1.3. Test Result

Total test 2 items, pass 2 items. Please refer to "6.2 Test Results".

1.4. Testing Location

Address: Building G, Shenzhen International Innovation Center, No.1006
Shennan Road, Futian District, Shenzhen, Guangdong, China

1.5. Project data

Testing Start Date: 2023-02-25

Testing End Date: 2023-02-28

1.6. Signature

Liu Xiangzhou

(Prepared this test report)

Liang Yong

(Reviewed this test report)

Cao Junfei

(Approved this test report)



2. CLIENT INFORMATION

2.1. Applicant Information

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2.2. Manufacturer Information

Company Name: TCL Communication Ltd.
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3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT

(AE)

3.1. About EUT

Description	Mobile Phone
Model Name	T506A
FCC ID	2ACCJB186
Condition of EUT as received	No obvious damage in appearance

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Shenzhen Academy of Information and Communications Technology.

3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version	Receive Date
UT02aa	353380540012472	05	vVK52	2023-02-24

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE

AE ID*	Description
AE1	Battery
AE2	Charger
AE3	USB Cable
AE4	Headset

AE1-1

Model	TLp048A8
Manufacturer	Dongguan Ganfeng Electronics co.,LTD
Capacity	5000mAh
Nominal Voltage	3.85 V

AE1-2

Model	TLp048A7
Manufacturer	VEKEN
Capacity	5000mAh
Nominal Voltage	3.85 V

AE1-3

Model	TLp048AA
Manufacturer	Zhongshan Tianmao Battery Co., Ltd.
Capacity	4850mAh
Nominal Voltage	3.85 V



AE2-1

Model UT-681A-5200ZCY
Manufacturer Shenzhen Baijunda Electronic Co., Ltd

AE2-2

Model UC13US
Manufacturer Puan

AE2-3

Model CG10A0502000EU
Manufacturer Huizhou Juwei Electronics Co.,Ltd

AE2-4

Model CG10A0502000UU
Manufacturer Huizhou Juwei Electronics Co.,Ltd

AE3

Model JWUB1520-M01R
Manufacturer JWELL

AE4

Model JWEP0903-T01R
Manufacturer JWELL

* AE ID: is used to identify the test sample in the lab internally.

AE: ancillary equipment

AE2: The circuit boards of AE2-3 and AE2-4 are the same.



3.4. EUT Set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	EUT+AE1-3+AE2-4+AE3+AE4	



3.5. General Description

The Equipment Under Test (EUT) is a model of Mobile Phone with internal antenna.

It supports GSM 850/900/1800/1900MHz, WCDMA Bands 1/2/4/5/8, LTE Bands 1/2/3/4/5/6/7/8/12/13/17/26/28/38/40/66.

It has MP3, Camera, FM Receiver, USB memory, Bluetooth, Wi-Fi and GNSS functions.

It consists of normal options: Battery, Charger, USB Cable and Headset.

Since subscribers often use EUT during charging, EUT is to be tested in accordance with "Fixed use" besides in accordance with "Portable use".

Manual and specifications of the EUT were provided to fulfill the test.

Samples (EUT+AE) undergoing test were selected by the Client. Relevant information is provided by the client.

This report serves as a record of Mobile Phone T506A manufactured by TCL Communication Ltd.

According to the declaration of differences by manufacturer. T506A has added chargers and battery; the tables below show the details:

Added	Model	Manufacturer
Battery (AE1-3)	TLp048AA	Zhongshan Tianmao Battery Co., Ltd.
Charger(AE2-3)	CG10A0502000EU	Huizhou Juwei Electronics Co.,Ltd
Charger(AE2-4)	CG10A0502000UU	Huizhou Juwei Electronics Co.,Ltd

The hardware version is changed to 05.

According to the declaration of differences by manufacturer, the following tests need to be performed.

NO.	Test item	Operating mode
1	Radiated Emission	Video Player
2	Conducted Emission	Video Player

Other results of are cited from the initial model.

The report number for initial model is I22N01585-EMC.



4. REFERENCE DOCUMENTS

4.1. Reference Documents for Testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices	(10-1-2021 Edition)
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2014

5. LABORATORY ENVIRONMENT

Anechoic chamber (FACT3-2.0) did not exceed following limits along the EMC testing:

9.10m×6.10m×5.60m (L×W×H)

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4Ω
Normalised site attenuation (NSA)	< ± 4 dB, 3 m distance, from 30 to 1000 MHz
Voltage Standing Wave Ratio (VSWR)	≤ 6 dB, from 1 to 18 GHz, 3 m distance
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

Shielded room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. =20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4Ω

6. SUMMARY OF TEST RESULTS

6.1. Testing Environment

Normal Temperature: 15~35°C
 Relative Humidity: 20~75%
 Atmospheric pressure 86~106kPa

6.2. Summary of Measurement Results

Abbreviations used in this clause:	
P	Pass
NA	Not applicable
F	Fail

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Radiated Emission	15.109(a)/ Section 6.2	A.1	P
2	Conducted Emission	15.107(a)/ Section 6.1	A.2	P

Note: As FCC Part 15, Subpart B, conducted Emission is not required for equipment which is powered by DC source.

6.3. Statement

6.3.1 Statements of conformity

This report takes measured values as criterion of test conclusion. The test conclusion meets the limit requirements.

7. MEASUREMENT UNCERTAINTY

Test item	Frequency ranges	Measurement uncertainty
Radiated Emission	30MHz-1GHz	4.86dB(k=2)
	1GHz-18GHz	4.82dB(k=2)
	18GHz-40GHz	2.90dB(k=2)

8. MEASURING APPARATUS UTILIZED

No.	Name	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1.	Test Receiver	ESR7	101676	R&S	2023.11.23	1 year
2.	Spectrum Analyzer	FSV40	101192	R&S	2024.01.11	1 year
3.	BiLog Antenna	3142E	0224831	ETS-Lindgren	2024.05.27	3 years
4.	Horn Antenna	3117	00066577	ETS-Lindgren	2025.04.17	3 years
5.	Anechoic chamber	FACT3-2.0	1285	ETS-Lindgren	2023.05.29	2 years
6.	Software	EMC32	V10.50.40	R&S	/	/
7.	Horn Antenna	QSH-SL-18-26-S-20	17013	Q-par	2026.01.30	3 years
8.	Horn Antenna	QSH-SL-8-26-40-K-20	17014	Q-par	2026.01.30	3 years

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission (§15.109(a))

Reference

FCC: Part 15.109(a)

A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator at a distance of 3 meters or 1 meter is tested. Tested in accordance with the procedures of ANSI C63.4 -2014, section 8.3. The EUT was placed on a non-conductive table. Below 18GHz the measurement antenna was placed at a distance of 3 meters from the EUT. Above 18GHz the measurement antenna was placed at a distance of 1 meters from the EUT. (According to Part 15.31(f)(1), 1m limit is calculated by extrapolation factor of 20 dB/decade) During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

A.1.2 EUT Operating Mode:

Video Player: The EUT is connected to a charger for charging and keeping on playing mp3.

All equipment is placed on the test table top and arranged in a typical configuration in accordance with ANSI C63.4-2014 and manipulated to obtain worst case emissions.

A.1.3 Measurement Limit

Limit from Part 15.109(a)

Frequency range (MHz)	Field strength limit ($\mu\text{V}/\text{m}$)		
	Quasi-peak	Average	Peak
30-88	100		
88-216	150		
216-960	200		
960-1000	500		
>1000		500	5000

*Note: The original limit is defined at 10m test distance. This limit is calculated according to CISPR requirements.

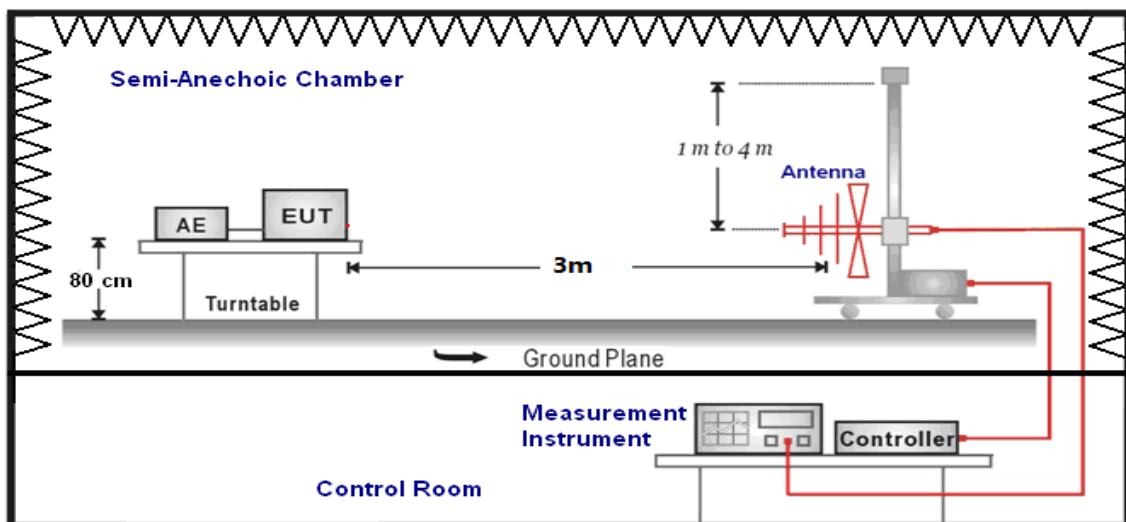
A.1.4 Test Condition

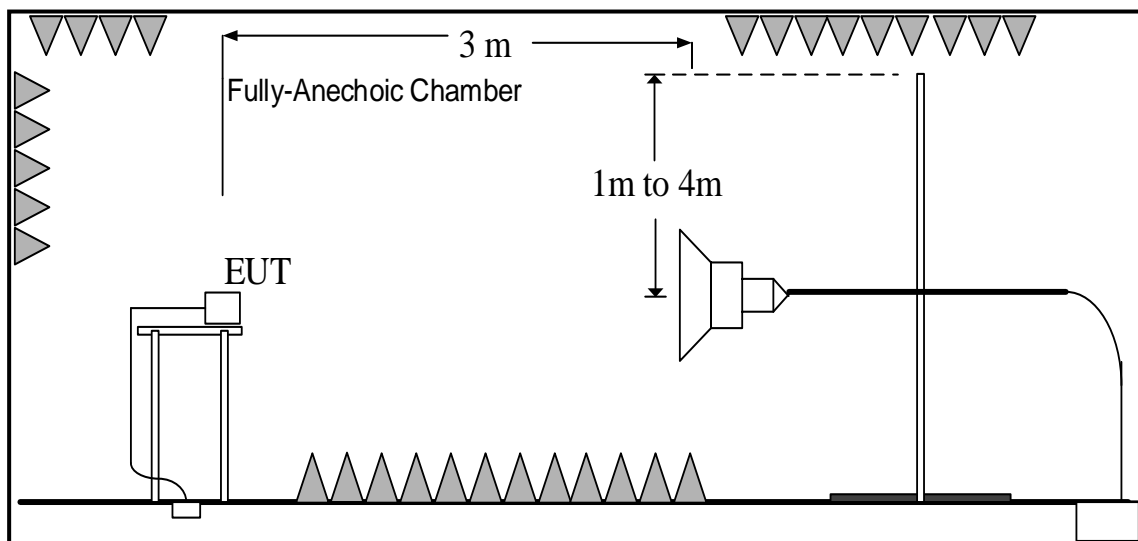
Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	120kHz (IF bandwidth)	5
Above 1000	1MHz/3MHz	15

A.1.5 Test power supply

Power	Voltage (V)
DC	13.6

**A.1.6 Test set-up:
30MHz-1GHz**



1GHz-40GHz

A.1.7 Measurement Results

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss". It includes the antenna factor of receive antenna and the path loss.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{Rpl} = P_{\text{Mea}} + G_A + G_{PL}$$

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Result: Quasi-Peak (dB μ V/m) / Average (dB μ V/m) / Peak (dB μ V/m)

Note: the result contains vertical part and Horizontal part

Video Player

Frequency range (MHz)	Quasi-Peak Limit (dB μ V/m)	Result (dB μ V/m)	Conclusion
		UT02aa/Set.1	
30-88	40.00	See Figure A.1.1.	P
88-216	43.52		
216-960	46.02		
960-1000	54.00		

Frequency range (MHz)	Average Limit (dB μ V/m)	Peak Limit (dB μ V/m)	Result (dB μ V/m)	Conclusion
			UT02aa/Set.1	
1000 to 18000	54.00	74.00	See Figure A.1.2.	P
18000 to 26500	63.54	83.54	See Figure A.1.3.	
26500 to 40000	63.54	83.54	See Figure A.1.4.	

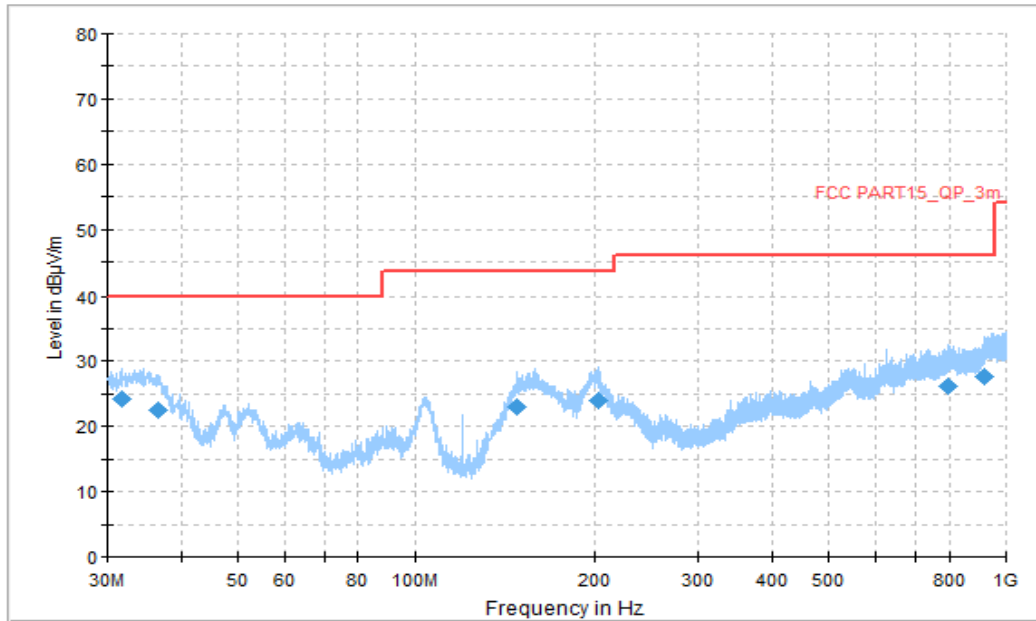


Figure A.1.1. Radiated Emission (Video Player, 30MHz to 1GHz)

Final_Results

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	ARpl (dB/m)	P _{Mea} (dBµV)
31.670556	24.13	40.00	15.87	V	-12	36.13
36.574444	22.59	40.00	17.41	V	-15	37.59
148.070556	23.11	43.52	20.41	V	-18	41.11
203.737778	23.86	43.52	19.66	V	-16	39.86
795.383889	26.10	46.02	19.92	V	0	26.1
920.837222	27.56	46.02	18.46	H	2	25.56

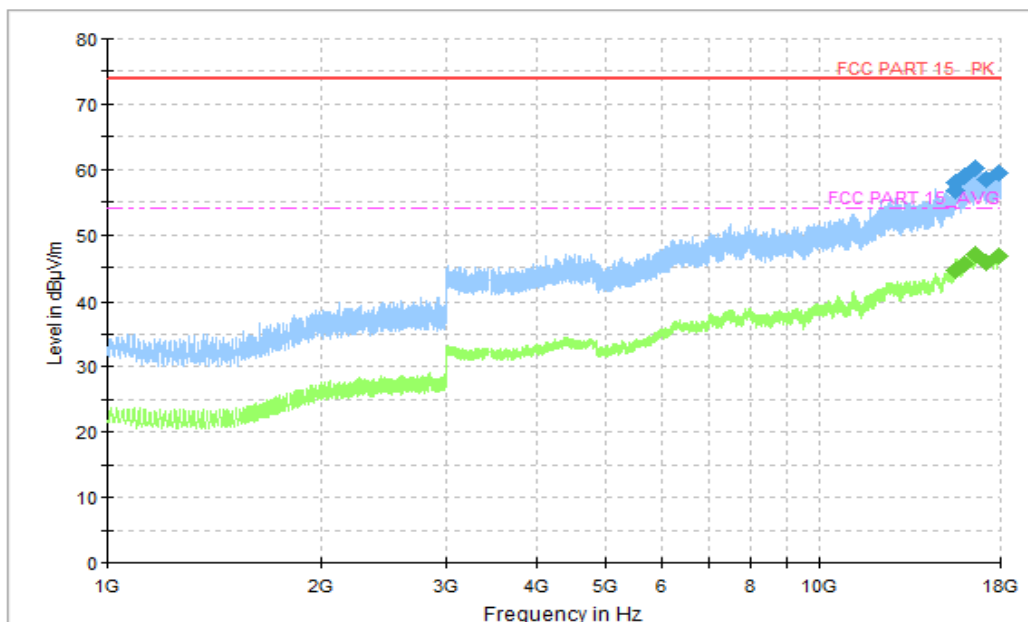


Figure A.1.2. Radiated Emission (Video Player, 1GHz to 18GHz)

Final_Results_PK

Frequency(MHz)	Peak (dBµV/m)	Limit (dBµV/m)	Margin(dB)	Polarity	ARpl (dB/m)	P _{Mea} (dBµV)
15546.500000	56.83	74.00	17.17	H	19	37.83
15553.750000	58.05	74.00	15.95	V	19	39.05
16029.250000	58.84	74.00	15.16	H	20	38.84
16587.250000	60.19	74.00	13.81	V	22	38.19
17142.750000	58.34	74.00	15.66	V	21	37.34
17886.250000	59.50	74.00	14.50	V	24	35.50

Final_Results_AVG

Frequency(MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin(dB)	Polarity	ARpl (dB/m)	P _{Mea} (dBµV)
15546.500000	44.46	54.00	9.54	H	19	25.46
15553.750000	44.45	54.00	9.55	V	19	25.45
16029.250000	45.55	54.00	8.45	H	20	25.55
16587.250000	47.07	54.00	6.93	V	22	25.07
17142.750000	45.71	54.00	8.29	V	21	24.71
17886.250000	46.85	54.00	7.15	V	24	22.85

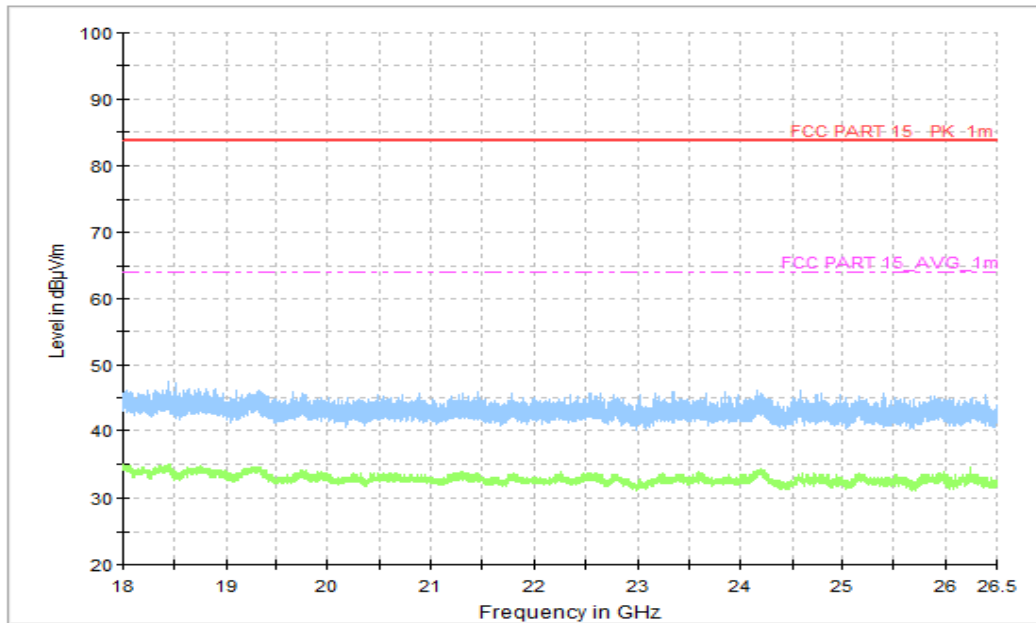


Figure A.1.3. Radiated Emission (Video Player, 18GHz to 26.5GHz)

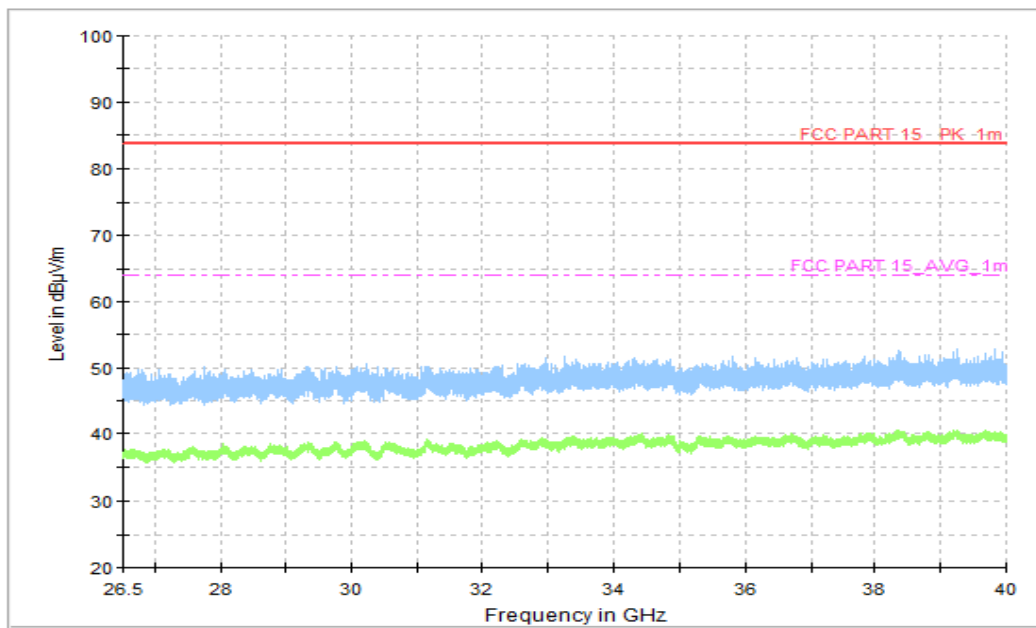


Figure A.1.4. Radiated Emission (Video Player, 26.5GHz to 40GHz)

A.2 Conducted Emission (§15.107(a))

Reference

FCC: Part 15.107(a)

A.2.1 Method of measurement

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 -2014, section 7.3.

A.2.2 EUT Operating Mode:

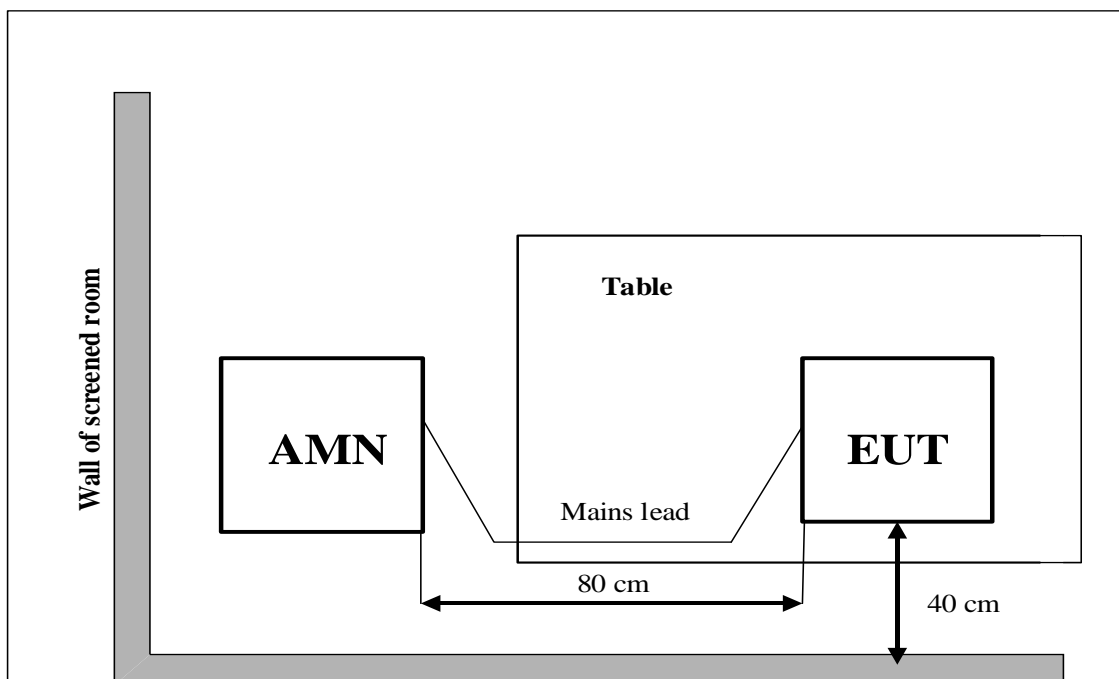
Video Player: The EUT is connected to a charger for charging and keeping on playing mp3.

A.2.3 Measurement Limit

Frequency of emission (MHz)	Conducted limit (dBµV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency

A.2.4 Test set-up:



A.2.5 Test Condition in charging mode

Voltage (V)	Frequency (Hz)
120	60
240	60

RBW	Sweep Time(s)
9kHz	1

A.2.6 Measurement Results

$$\text{QuasiPeak(dB}\mu\text{V) /Average(dB}\mu\text{V) =PMea+Corr}$$

Where

Corr: PathLoss + Voltage Division Factor

PMea: Measurement result on receiver.

Video Player

AC Input Port/ Voltage: 120V/60Hz

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Average Limit (dB μ V)	Result (dB μ V)	Conclusion
			UT02aa/Set.1	
0.15 to 0.5	66 to 56	56 to 46	See Figure A.2.1.	P
0.5 to 5	56	46		
5 to 30	60	50		

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Video Player

AC Input Port/ Voltage: 240V/60Hz

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Average Limit (dB μ V)	Result (dB μ V)	Conclusion
			UT02aa/Set.1	
0.15 to 0.5	66 to 56	56 to 46	See Figure A.2.2.	P
0.5 to 5	56	46		
5 to 30	60	50		

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

AC Input Port/ Voltage: 120V/60Hz

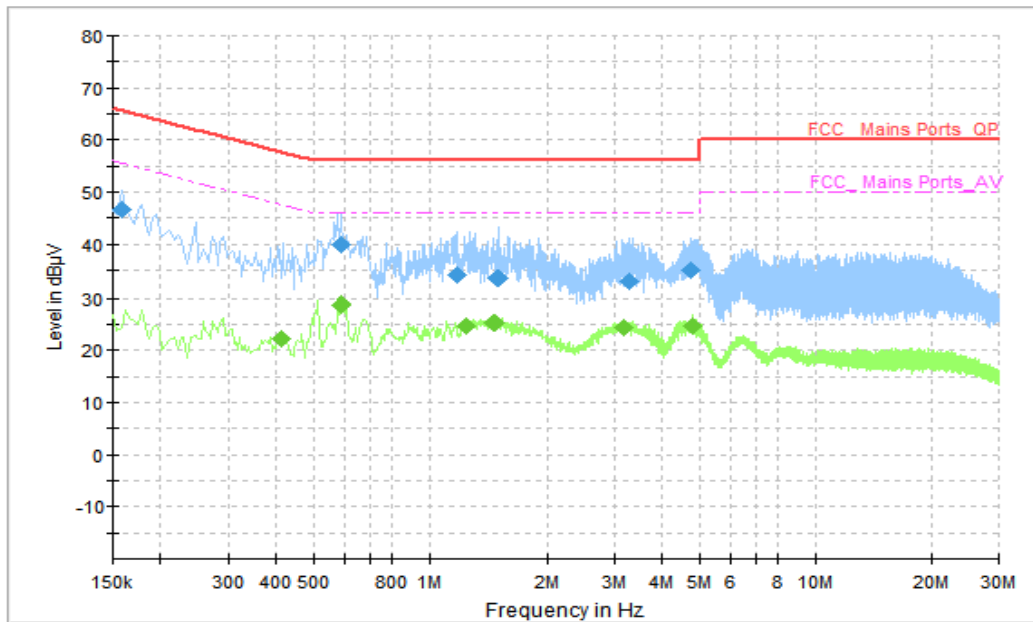


Figure A.2.1. Conducted Emission(Video Player)

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P _{Mea} (dBµV)
0.158000	46.65	65.57	18.92	N	10	36.65
0.586000	40.09	56.00	15.91	N	10	30.09
1.174000	33.98	56.00	22.02	N	10	23.98
1.502000	33.53	56.00	22.47	N	10	23.53
3.258000	32.91	56.00	23.09	N	10	22.91
4.750000	35.11	56.00	20.89	N	10	25.11

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P _{Mea} (dBµV)
0.410000	22.15	47.65	25.50	L1	10	12.15
0.586000	28.77	46.00	17.23	N	10	18.77
1.246000	24.72	46.00	21.28	L1	10	14.72
1.470000	25.18	46.00	20.82	L1	10	15.18
3.154000	24.47	46.00	21.53	L1	10	14.47
4.806000	24.79	46.00	21.21	N	10	14.79

AC Input Port/ Voltage: 240V/60Hz

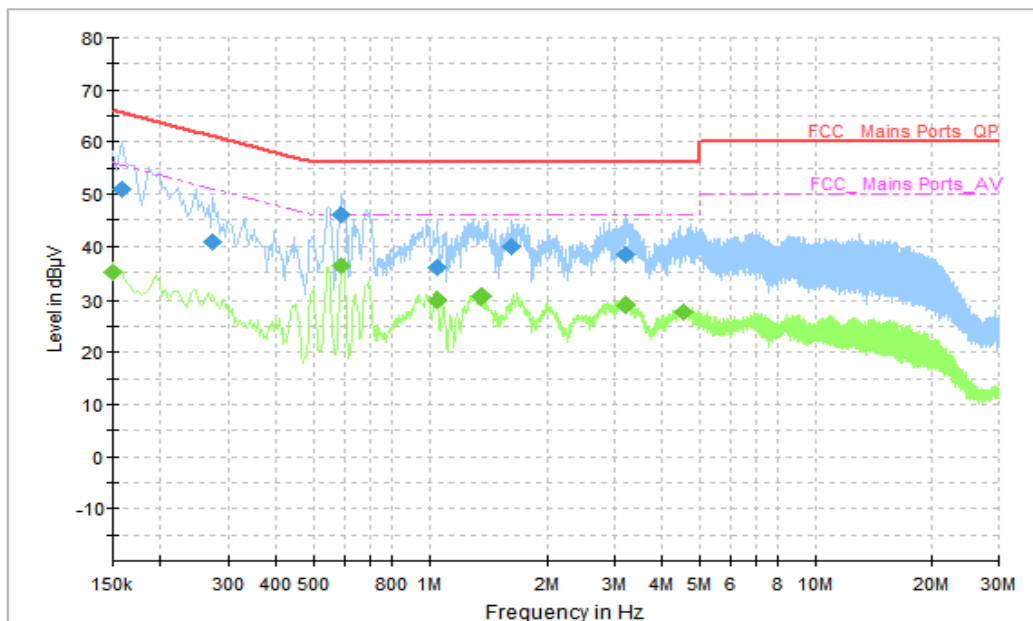


Figure A.2.2. Conducted Emission(Video Player)

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P _{Mea} (dBµV)
0.158000	50.87	65.57	14.70	N	10	40.87
0.274000	40.81	61.00	20.19	L1	10	30.81
0.590000	45.97	56.00	10.03	N	10	35.97
1.046000	35.90	56.00	20.10	N	10	25.90
1.618000	40.01	56.00	15.99	N	10	30.01
3.222000	38.31	56.00	17.69	N	10	28.31

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	P _{Mea} (dBµV)
0.150000	35.18	56.00	20.82	N	10	25.18
0.590000	36.34	46.00	9.66	N	10	26.34
1.042000	29.79	46.00	16.21	L1	10	19.79
1.354000	30.39	46.00	15.61	L1	10	20.39
3.222000	28.85	46.00	17.15	L1	10	18.85
4.514000	27.65	46.00	18.35	L1	10	17.65

***END OF REPORT**